Question FBQ1 : From the first law of thermodynamic; ∆U=q +W. The sign of W is positive when heat absorbed leads to increase in \_\_\_\_.  
Answer: internal energy  
  
Question FBQ2 : For an adiabatic change, the heat absorbed or given off; is  
Answer: Equal to zero  
  
Question FBQ3 : When molecules of gas collide with each other, the change in momentum is  
Answer: Equal to zero  
  
Question (FBQs) 3 : What is the kinetic energy of an ideal gas occupying a volume of 32.4dm3 at stp (p=101325Pa)  
Answer: 4924.40Nm  
  
Question FBQ4 : What is the kinetic energy of an ideal gas occupying a volume of 32.4dm3 at stp (p=101325Pa)  
Answer: 4924.40Nm  
  
Question FBQ5 : The marcroscopic property of gases which the kinetic theory explains include the following except  
Answer: Pressure  
  
Question FBQ6 : When the pressure of a gas is lowered; its density is \_\_\_\_\_  
Answer: Increased  
  
Question FBQ7 : The relationship between pressure and volume gas is given by \_\_\_ law  
Answer: Boyle’s  
  
Question FBQ8 : 90cm3 gas syringe contain 70cm3 of gas was compressed to 45cm3. If the atmospheric pressure is 1 atm, calculate the pressure of the gas in the syringe after compression  
Answer: 1.56 atm  
  
Question FBQ9 : The average kinetic energy of a gas is a measure of the \_\_\_\_\_\_\_\_\_ of that gas  
Answer: Absolute temperature  
  
Question FBQ10 : Within the liquid system, the more energetic particles/molecules are found\_\_\_\_\_\_\_  
Answer: On the surface liquid/particles  
  
Question FBQ11 : At the normal boiling point of a liquid, the prevailing vapour pressure of the liquid is \_\_\_\_\_\_ the ambient atmospheric pressure  
Answer: Equal to  
  
Question FBQ13 : The Raoults law can be used to estimate\_\_\_\_\_\_\_ of liquid in a mixture  
Answer: No of moles  
  
Question FBQ14 : System with negative deviations have vapour pressure that are \_\_\_\_\_\_\_expected Raoult’s vapour pressure  
Answer: Equal to  
  
Question FBQ15 : Thermodynamic property which depends on the quality of matter in the system is known as  
Answer: extensive  
  
Question FBQ16 : Ice is a good example of a \_\_\_\_\_\_ phase system  
Answer: 2  
  
Question FBQ17 : There are \_\_\_\_\_\_ types of material equilibrium  
Answer: Two  
  
Question FBQ18 : The transport of matter between phases of system without conversion of one species to another is known as  
Answer: Phase equilibrium  
  
Question FBQ19 : In a phase diagram, the crossing of any two-phase curre is called a  
Answer: Transition  
  
Question FBQ20 : In a isochoric process, the work done is equal to  
  
Answer: 0  
  
Question FBQ21 : There are \_\_\_\_\_\_\_\_\_\_ equilibrium on the phase diagram of water  
Answer: Three  
  
Question FBQ22 : The change from solid to vapour is known as  
Answer: Sublimation  
  
Question FBQ23 : On phase diagram, the region where three phases co-exist in equilibrium is called \_\_\_ point  
Answer: Triple  
  
Question FBQ24 : The temperature and pressure beyond which gases can no longer be compressed is known as  
Answer: Critical point  
  
Question FBQ25 : The phase diagram of carbon (iv) is known to display a triple point which is above\_\_\_\_\_\_\_\_  
Answer: Atmospheric pressure  
  
Question FBQ26 : At which pressure is it likely to have liquid carbon (iv) oxide  
Answer: 5.11 atm  
  
Question FBQ27 : The phase diagram of water display a triple point which is \_\_\_ atmospheric pressure  
Answer: Below  
  
Question FBQ28 : The phase diagram of carbon (iv) oxide shows \_\_\_\_\_\_\_ phases  
Answer: Three  
  
Question FBQ29 : An isoberic process occurs at \_\_\_\_\_\_\_\_  
Answer: Constant pressure  
  
Question FBQ30 : When the vapour pressure and the prevailing atmospheric pressure are equal, the associated temperature is the \_\_\_\_\_\_\_\_ of that liquid  
Answer: Boiling point  
  
Question FBQ31 : Thermodynamics is the study of heat change accompanying  
Answer: Chemical and physical reactions  
  
Question FBQ32 : An entropy is a thermodynamic process which is carried out at constant  
Answer: internal energy  
  
Question FBQ33 : …………………..equilibrium is attained when rate of  sublimation of solid equals the rate of deposition of its vapour phase  
Answer: Solid vapour  
  
Question FBQ34 : Thermodynamic system is usually separated from the surroundings by the \_\_\_\_\_\_\_\_  
Answer: Boundary  
  
Question FBQ35 : When the volume of a thermodynamic system expands work is generated against it’s  
Answer: Surroundings  
  
Question MCQ1 : The equation Cp = Cv + R is heat capacity at constant pressure from equation it means, that  
Answer: Cp is always greater than Cv by an amount equal to the gas constant  
  
Question MCQ2 : The 4 basic equilibrium properties that can be explained by the kinetic theory of gas are  
  
Answer: Temperature, pressure speed of gas molecule and collision number  
  
Question MCQ3 : The findings of Gay-Lusaac /Jaeques Charles on the relationship between the volume of gas and its temperature is that there exist a  
Answer: Linear relationship between volume and temperature  
  
Question MCQ4 : The total pressure of a mixture of gases is equal to the sum of the partial pressures of the gases in the mixture. This assertion is presumed based on the fact that  
Answer: The gases do not react chemically with each other  
  
Question MCQ5 : The ideal gas equation and the parameters in it are these  
Answer: PV=nRT P= pressure, V= volume, n=no of moles, R= gas constant, T= absolute temperature  
  
Question MCQ6 : A given gas mixture consist of n mole of nitrogen nN2 and n mole of Oxygen nO2. The total pressure of the mixture is PT. The equations for the partial pressure of nitrogen and oxygen in the mixture respectively are  
Answer: (nN2/ nN2 + nO2)PT; (nO2/ nN2 + nO2)PT  
  
Question MCQ7 : Equation of state is a dynamic model  
Answer: that relates two or more state functions  
  
Question MCQ8 : For cases when the intermolecular forces among the particles of a gas is not negligible, the ideal gas equation can be modified for such cases, as shown below  
Answer: PV=(P+a/V2) (V-b) = RT( for 1 mole)  
  
Question MCQ9 : The difference between evaporation and boiling is that  
Answer: Evaporation is a surface process while boiling involves  
  
Question MCQ10 : Evaporation process, when equilibrium is reached the forward reaction converts liquid to vapour and the reverse reaction involves the reconversion of vapour to liquid. The forward reaction is endothermic because  
Answer: Heat is needed to convert liquid to vapour  
  
Question MCQ11 : Boiling of liquid occurs when the prevailing vapour pressure of the liquid is  
Answer: Equal to the ambient atmospheric pressure  
  
Question MCQ12 : In an ideal mixture of liquids, the partial pressure of each component in the mixture is equal to the vapour pressure of the pure component  
Answer: Multiplied by its mole fraction in the mixture  
  
Question MCQ13 : The Raoult’s law states that the pressure of fugacity or a single phase mixture is equal to the  
Answer: Mole weighed sum of the component pressure  
  
Question MCQ14 : Raoult’s law is most applicable to non- electrolytes and non-polar molecules because  
Answer: Their molecules have weak intermolecular attraction  
  
Question MCQ15 : Deviation from Raoult’s law is positive when vapour pressure is  
Answer: Higher than expected Rault’s vapour pressure  
  
Question MCQ16 : Negative deviation from Raoult’s law is to the fact that  
Answer: Stronger intermolecular attraction exists between constituents of the mixture than exists in the pure components  
  
Question MCQ17 : The significance of the positive and negative deviations from Raoults law is they can be used for determination of the  
Answer: The thermodynamic activity of coefficients of the constituents of the mixtures  
  
Question MCQ18 : Solid vapour equilibrium is attained  
Answer: when rate of sublimation of solid equals the rate of deposition of its vapour phase  
  
Question MCQ19 : In a typical phase diagram of water, the critical point defines the  
Answer: Temperature and pressure beyond which gases can no longer be compressed  
  
Question MCQ20 : On the phase diagram of carbon (iv) oxide, the triple point is found to be above atmospheric pressure (5.11atm). This implies that  
Answer: It is not possible to have liquid Carbon (iv) oxide at pressure less than (5.11atm)  
  
Question MCQ21 : The mathematical expression of the phases rule is F= C-P=2, where F is the degree of freedom. F represents the  
Answer: Environmental conditions which can be varied without changing the number of phases in the system  
  
Question MCQ22 : Chemical thermodynamics study the heat change accompaining chemical reactions. The major objectives of chemical thermodynamics is to establish conditions needed for  
Answer: Predicting the feasibility of chemical reactions, phase change and solution formation  
  
Question MCQ23 : A system does not allow exchange of matter, heat or work with the surrounding. It means  
Answer: The mass and total energy of the system will remain constant over time  
  
Question MCQ24 : A state function refers to the property of a system  
Answer: Which depends only on the intial and final states of the system  
  
Question MCQ25 : An isochoric process, is a process that is carried out at constant value  
Answer: The work done is zero since change in volume is zero  
  
Question MCQ26 : An adiabatic process is a system which is thermally insulated from its environment and its boundary is a thermal insulator. This implies  
Answer: Energy is neither added or subtracted from the system  
  
Question MCQ27 : A cyclic process is a sequence of processes that leaves the system in the same state in which it started. This implies that  
Answer: The total internal energy change in cyclic process is zero  
  
Question MCQ28 : The first law of thermodynamics is somrtimes called the law of conservation of energy because  
Answer: it accounts for the input and output energies when a system does work  
  
Question MCQ29 : The three significant parameters in the first law of thermodynamics are  
Answer: Work, heat and internal energy  
  
Question MCQ30 : An ideal gas undergoing isothermal expansion is characterized by a constancy of temperature. Hence the internal energy is  
Answer: Equal to zero  
  
Question MCQ31 : The collision of the molecules of gas is elastic, this implies, the collision  
Answer: does not involve loss of energy  
  
Question MCQ32 : Energy and volume are examples of \_\_\_\_\_\_\_\_\_\_ property  
Answer: extensive   
  
Question MCQ33 : The slowest step in any chemical reaction is  
Answer: Rate limiting step  
  
Question MCQ34 : Molecularity of a reaction  
Answer: As numerically equal to the sum of stoichiometric coefficients of reactants in elementary reaction  
  
Question MCQ35 : The effect of temperature on the rate of a chemical reaction, it accepted that reaction rate doubles foe every \_\_\_\_\_\_ rise in temperature  
Answer: 100C